

AMENDMENTS TO THE CLAIMS:

Please cancel claims 1, 3, 5, and 11, without prejudice or disclaimer of subject matter; add new claims 21 to 24; and amend claims 2, 4, 6 to 10, and 12 to 20, as shown below. This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. (Canceled)
2. (Currently Amended) The driving circuit for a vacuum fluorescent display according to claim 4 ~~claim 1~~, wherein based on the detection signal, the driving circuit for a vacuum fluorescent display outputs ~~to exterior~~ a signal for notifying that the level of an abnormal state of the pulse voltage is fixed.
3. (Canceled)
4. (Currently Amended) A driving ~~The driving~~ circuit for a vacuum fluorescent display, comprising according to claim 3, wherein the pulse detecting unit:
a counting unit configured to count ~~counts~~ the number of pulses per predetermined time period ~~TP of the pulse of a pulse voltage for pulse-driving a filament of the vacuum fluorescent display;~~ and
a detecting unit configured to output ~~outputs the~~ detection signal indicating that the level of the pulse voltage is ~~fixed~~ fixed, when detecting that the counted number of pulses per predetermined time period, counted by the counting unit, is equal ~~TP equals to or is less than the~~ number of a reference pulse number.
5. (Canceled)

6. (Currently Amended) A driving ~~The driving~~ circuit for a vacuum fluorescent display, comprising according to claim 5, wherein the level detecting unit:

a counting unit configured to count ~~measures~~ a time period for which the level of a DC voltage level of the DC rectified voltage produced by integrating a pulse the pulse voltage for pulse-driving a filament of the vacuum fluorescent display, shifts to the level indicating that the level of the pulse voltage is fixed; and

a detecting unit configured to output a ~~outputs the~~ detection signal indicating that the level of the pulse voltage is fixed fixed, when detecting that the measured time period counted by the counting unit is equal to or longer than a predetermined time period period ~~TL~~.

7. (Currently Amended) A driving ~~The driving~~ circuit for a vacuum fluorescent display, ~~comprising:~~ display according to claim 1, wherein the detecting unit comprises:

a detecting unit configured to detect that the level of a pulse voltage for pulse-driving a filament of the vacuum fluorescent display is fixed, and to output a detection signal indicative of the result of the detection, the detecting unit further comprising:

a pulse detecting unit configured to detect ~~for detecting~~ that the level of the pulse voltage is fixed, based on the number of pulses the pulses per predetermined time period period ~~TP~~ of the pulse voltage, voltage; and

a level detecting unit configured to detect ~~for detecting~~ that the level of the pulse voltage is fixed, based on the level of a DC voltage level of the DC rectified voltage produced by integrating the pulse voltage, and wherein

a selecting unit configured to select ~~the detecting unit is~~ switchable to either the output operation of the pulse detecting unit or the output operation of the level detecting unit.

8. (Currently Amended) The driving circuit for a vacuum fluorescent display according to claim 7, wherein ~~the driving circuit for a vacuum fluorescent display comprises a switching unit that receives from an exterior~~ the selecting unit selects the output of the pulse detecting unit or the output of the level detecting unit, based on data for selecting switching to either the output operation of the pulse detecting unit or the output operation of the level detecting unit; and that

~~switches to either the operation of the pulse detecting unit or the operation of the level detecting unit, based on the data received from the exterior.~~

9. (Currently Amended) The driving circuit for a vacuum fluorescent display according to claim 4 ~~claim 1~~, wherein the driving circuit for a vacuum fluorescent display is a semiconductor integrated circuit further comprising:

a filament pulse controlling unit configured to output ~~for outputting~~ a pulse-driving signal for pulse-driving the filament; and ~~-with~~

a terminal to which a switching element ~~externally connectable~~ for generating the pulse voltage based on the pulse-driving signal, is operable to be externally connected.

10. (Currently Amended) The driving circuit for a vacuum fluorescent display according to claim 4 ~~claim 1~~, further comprising: ~~wherein the driving circuit for a vacuum fluorescent display~~

a filament pulse controlling unit configured to output ~~outputs~~ a pulse-driving signal for pulse-driving the filament; ~~filament;~~ and ~~comprises~~

a switching element for generating the pulse voltage based on the pulse-driving signal.

11. (Canceled)

12. (Currently Amended) The driving circuit for a vacuum fluorescent display according to claim 4 ~~claim 10~~, wherein the driving circuit for a vacuum fluorescent display is a semiconductor integrated circuit, further comprising:

a filament pulse controlling unit configured to output a pulse-driving signal for pulse-driving the filament; and ~~integrated with~~

the switching elements ~~a switching element~~ for generating the pulse voltage based on the pulse-driving signal.

13. (Currently Amended) The driving circuit for a vacuum fluorescent display according to claim 6, further comprising ~~claim 7,~~ ~~wherein the driving circuit for a vacuum fluorescent display~~

comprises an integrating circuit for integrating the pulse voltage so as to produce the DC voltage producing a DC-rectified voltage by integrating the pulse voltage.

14. (Currently Amended) The driving circuit for a vacuum fluorescent display according to claim 6 claim 13, wherein the driving circuit for a vacuum fluorescent display is a semiconductor integrated circuit, further comprising a terminal to which an integrating circuit for integrating the pulse voltage so as to produce the DC voltage, is operable to be connected with the integration circuit connectable externally.

15. (Currently Amended) A driving ~~The driving~~ circuit for a vacuum fluorescent display, comprising: according to claim 1, wherein the driving circuit for a vacuum fluorescent display comprises

a filament driving unit configured to pulse-drive a filament of the vacuum fluorescent display with a pulse voltage;

a grid driving unit configured to drive ~~for driving~~ a grid electrode of the vacuum fluorescent display; ~~display and~~

a segment driving unit configured to drive ~~for driving~~ a segment electrode of the vacuum fluorescent display; ~~display, and wherein the driving circuit further comprises~~

a detecting unit configured to output a detection signal indicating that the level of the pulse voltage is fixed, when detecting that the level of the pulse voltage is fixed, based on the number of pulses per predetermined time period of the pulse voltage or on a DC voltage produced by integrating the pulse voltage; and

a control unit configured to control ~~for controlling at least one output of the outputs of the~~ filament driving unit, the grid driving unit, and the segment driving unit, ~~unit~~ in order to terminate the driving of at least one of the filament, the grid electrode, ~~electrode~~ and the segment electrode, based on the detection signal.

16. (Currently Amended) The driving circuit for a vacuum fluorescent display according to claim 15, wherein based on the detection signal, the control unit driving circuit for a vacuum fluorescent display controls at least one output of the outputs of the filament driving unit, the

grid driving unit, ~~unit~~ and the segment driving unit, ~~unit~~ such that at least one of levels of the pulse voltage for driving the filament, the voltage for driving the grid electrode, and the ~~or the~~ voltage for driving the segment electrode, ~~electrode~~ is at the ~~other~~ level for terminating the driving of the filament, the grid electrode, and the segment electrode, ~~based on the detection signal~~.

17. (Currently Amended) The driving circuit for a vacuum fluorescent display according to claim 15, wherein the control unit puts at least one output of the outputs of the filament driving unit, the grid driving unit, and the ~~or the~~ segment driving unit in a high-impedance status, based on the detection signal.

18. (Currently Amended) The driving circuit for a vacuum fluorescent display according to claim 15, wherein the driving circuit for a vacuum fluorescent display outputs ~~to exterior~~ a signal for notifying that the level of the pulse voltage is fixed, based on the detection signal.

19. (Currently Amended) The driving circuit for a vacuum fluorescent display according to claim 15, wherein the driving circuit for a vacuum fluorescent display is a semiconductor integrated ~~circuit, with~~ circuit, further comprising a terminal to which a switching element for generating being connectable externally which generates the pulse voltage based on the output of the filament driving control unit, is operable to be connected.

20. (Currently Amended) The driving circuit for a vacuum fluorescent display according to claim 15, ~~wherein the driving circuit for a vacuum fluorescent display~~ further comprising ~~comprises~~ a switching element for generating the ~~filament~~ pulse voltage based on the output of the filament driving unit.

21. (New) The driving circuit for a vacuum fluorescent display according to claim 6, wherein, based on the detection signal, the driving circuit for a vacuum fluorescent display outputs a signal for notifying that the level of the pulse voltage is fixed.

22. (New) The driving circuit for a vacuum fluorescent display according to claim 6, wherein the driving circuit for a vacuum fluorescent display is a semiconductor integrated circuit, further comprising:

- a filament pulse controlling unit configured to output a pulse-driving signal for pulse-driving the filament; and

- a terminal to which a switching element for generating the pulse voltage based on the pulse-driving signal, is operable to be externally connected.

23. (New) The driving circuit for a vacuum fluorescent display according to claim 6, further comprising:

- a filament pulse controlling unit configured to output a pulse-driving signal for pulse-driving the filament; and

- a switching element for generating the pulse voltage based on the pulse-driving signal.

24. (New) The driving circuit for a vacuum fluorescent display according to claim 6, wherein the driving circuit for a vacuum fluorescent display is a semiconductor integrated circuit, further comprising:

- a filament pulse controlling unit configured to output a pulse-driving signal for pulse-driving the filament; and

- a switching element for generating the pulse voltage based on the pulse-driving signal.